

# SatFACTS EXTENDED

## Volume 14 - #167

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### DVB-T Hardware

The concept of Freerview DVB-T was, and allegedly remains, "free to air". That suggests, perhaps improperly, that an appropriate television receiver connected to an appropriate (UHF) antenna, will provide reception of the much hyped "high definition" services available only on Freeview HD. There is a wake up call here. Surprise; the public is confused!

The print media, web sites, are basically chocker with confused consumer views and comments. SatFACTS warned this would happen more than one year ago but unfortunately the mass-media was not reading or perhaps simply did not understand. A journalist who is assigned to crime reports on Tuesday and Helen Clark on Wednesday is simply not prepared to understand TVNZ subterfuge on Thursday. Sad because millions of TV set owners are being mislead, and will continue to be shafted by a lack of suitable information. And it would have been so easy to "be honest" and above board with those who make TVNZ what it is today. Shame.

DVB-T, i.e. Freeview terrestrial, requires a UHF antenna of suitable performance, a set-top-box (STB), and if HDTV is the goal, a companion HDMI/HDCEP software equipped television receiver. And of course living where a DVB-T signal is in fact available; roughly 25% of New Zealand's land mass area. There are alternatives. Lacking the appropriate TV set, but having the rest of the requirements, a viewer can receive standard definition (SDTV) with everything but the newly released HDMI/HDCEP equipped receiver. Or, living where there is no DVB-T possible (the "other" 75% of New Zealand's land mass), SDTV from "Freeview Satellite" (DVB-S).

TVNZ, and much more limited co-partner TV3, have been inserting encouragement to purchase the required equipment into television programming for several weeks; this hype is likely to become more frequent as the one and only current justification at TVNZ for HDTV at all, their coverage of the 2008 Beijing Olympics in

DVB-T high definition, builds to the kick-off date of August 8th. And this is where public confusion reaches a pinnacle in bad taste. The 20-30-occasional 60 second messages are all about 'what you will receive' without any regard for how complex it is likely to be - and expensive - to trash all of your present TV reception equipment in favour of perhaps \$3,000 or more in new equipment for the questionable pleasure attached to watching sweating foreign athletes race for uncertain glory in Asia's "smog capital" (the Chinese plan to prohibit vehicular traffic for 90% of all vehicles in and around Beijing for a three week period; the pollutants currently reaching levels never even approached in similar cities such as Los Angeles). Virtually every agency participating in this arm-twisting exercise is in so deeply into the project that virtually nobody can afford to back out and be "honest" with viewers. Shame on TVNZ.

Freeview has promised retailers a "bonanza" (a word that appears in literature circulated apparently by Freeview to participating dealers and distributors); "thousands of consumers will flock to purchase HDTV receivers to enjoy the Olympics in (glorious) high definition television."

### The reality

HDMI/HDCEP capable television sets today require a \$400-500 price range STB, a special STB to TV set cable, and of course an adequate UHF off-air signal. Installer-engineer Bonner Martin (SF#166; p. 4) reported "digital runs on the sniff of an oily rag" - it takes far less from-antenna signal level for DVB-T to work than analogue. A signal level on analogue that barely produces an interference riddled display on digital typically works to perfection. That is the good news; perhaps the **ONLY** good news.

HDMI/HDCEP equipped plasma or LCD receivers cost more than non-digital equipped receivers while over the past six months the option of purchasing a widescreen receiver which does not include the two digital-magic requirements (HDMI + HDCEP) have all but disappeared

In this issue: Status of the DVB uptake in New Zealand

#### How the Freeview official web site explains HDCP and HDMI

**"HDCP:** High-bandwidth Digital Content Protection is a form of Digital Rights Management (DRM) developed by Intel Corporation to control digital audio and video content as it travels across High-Definition Multimedia Interface (HDMI). HDCP adds scrambling to the signal which can only be un-scrambled by a compliant display. For a significant proportion of their schedules NZ broadcasters are not the rights owners, therefore they must do what the rights owner requires them to do. The major international programme suppliers require HDCP or similar on high-definition digital outputs for Free-to-air broadcasts. For Freeview HD signals to be displayed in HD quality the television needs an HDCP compliant HDMI input.

**"HDMI:** High-Definition Multimedia Interface is a new type of connection between digital receivers, DVD players, game machines and TV's (sic). It is fast becoming standard in most new devices and surpasses similar analogue devices like SCART and component connections in both quality and simplicity. It also has the ability to work with new and developing software protection methods required by programmer content owners (e.g. HDCP). An HDMI cable is required in order to get a High Definition picture."

#### Translation?

*Thou shalt not record HD broadcasts in HD (high definition).*

from the retail outlets. In fact, receivers without HDMI + HDCP were selling for 30-40% less when available. But - and here we go again - Harvey Norman in Whangarei, Betta and Retravision throughout the country all stock essentially only the HDMI + HDCP models. In essence, the 25% of population living and shopping in that 75% of the New Zealand countryside where DVB-T is NOT available (and in most cases not planned to be available) are essentially forced to pay for HDMI + HDCP with essentially no promise the extra cost / extra capable receiver functions will EVER be of any use to them.

#### The satellite box

There are two versions of STB - one for satellite (DVB-S) and one for terrestrial (DVB-T). The S-version was launched here in SatFACTS in March 2007 (SF#151; Zinwell model ZMX 7500). Within three months, several not-approved-by-Freeview S version boxes also appeared in the marketplace, at approximately half the price of the Zinwell (and later Hills) "approved" models.

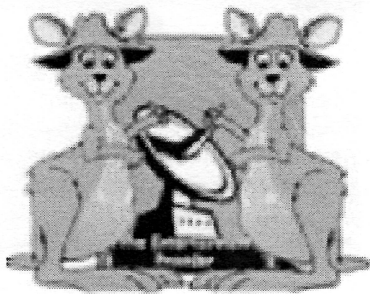
The approval procedure ("certification" TVNZ labeled it) seemed innocuous enough when announced; they circulated a set of technical criteria and promised any design which adopted those standards would be approved. To gain "approval" included a number of perks - being listed on Freeview and other web sites, merchandising support from TVNZ's promotional team, direct tie-ins to and by retailers selling "approved/certified" models. What was not apparent initially was the wall created to separate "approved" from those foolish enough to attempt the sale of DVB-S without TVNZ "partnership". For that is what it would turn out to be - firms cooperating with the certification were given financial and marketing advantages over those who did not. In effect, TVNZ posing under the cloak of 'Freeview' had become a defacto-partner in the sale of STBs. How did this benefit TVNZ/Freeview?

By adopting free-to-air standards which were so new as to not at their introduction actually be 'standards' - they were proposed but not through the formal procedure - FTA Freeview became an interesting variant in the CA and FTA worlds; it was FTA but only with special parts and software routines. Think of it as 'expensive FTA' because given the relatively modest quantity of DVB-S STBs that would be sold in New Zealand, the 'special NZ design' was unlikely to attract more than one or two actual suppliers. The marketplace response would be an 'end-run' around the standards - STBs that would not be "certified" but at half the cost of those that would. Many noticed that the primary difference between "certified" and "free market" was cost and some unexplained importance attached to "future inter-activity" by TVNZ.

By the end of 2007, the "free market" versions were selling on about a one to one basis with the approved units although the non-approved did not operate with TVNZ "certification" and all of the marketing perks attached to Zinwell and Hills models. TVNZ's Freeview spokesman Steve Browning had repeatedly warned "Approved models will capture 80% of the market" - a forecast not borne out by reality.

#### The terrestrial box

Browning, others, would explain by late in June 2007 "We rushed the satellite box to market and there were some problems". Indeed there were - all eventually either corrected (Zinwell's UHF output and a noise-creating power supply topped the complaint list) or ultimately accepted as "characteristics of that model". There were promises the terrestrial version, first released at Dick Smith with a whopping \$595 price tag in March 2008, would not have bugs. By-in-large this would be true. But the procedure would follow down the same path as the earlier satellite models; a set of specifications issued by TVNZ's engineering department, carefully created to push the technology envelope to all-but-guarantee the



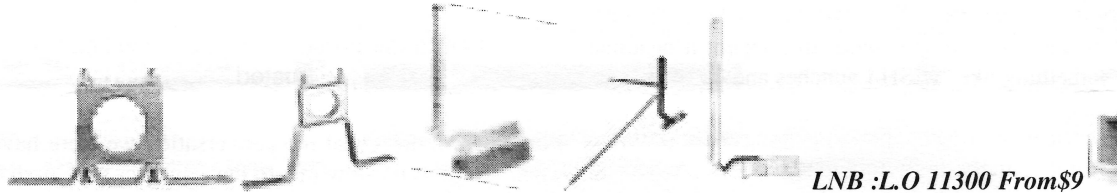
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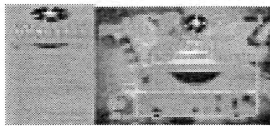
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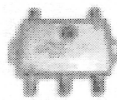
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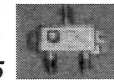


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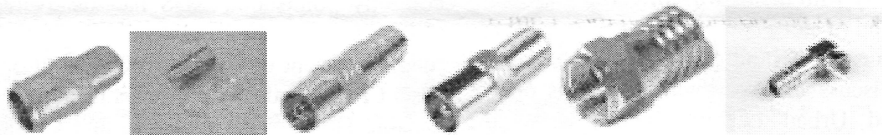
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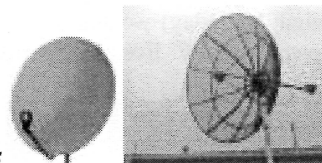
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#### Freeview's policy statement

"Freeview does not manufacture any of the hardware required to receive Freeview services. We do, however, rigorously test and accredit products to ensure they:

- are easy to install;
  - automatically scan for new channels when they launch;
  - have the ability to access interactive TV content as it becomes available (1);
  - work with the Freeview 8-day Electronic Programme Guide (the Freeview Guide);
  - capable of receiving over-the-air software upgrades (2);
  - come with a warranty/service guarantee and support.
- 'Just look for the Freeview logo - this means it's been tested and optimised to work with the Freeview service.'

#### Translation?

- (1) "...interactive TV content as it becomes available...". TVNZ still clings to their original premise that the "future of television will rely upon the consumer's desire to access supporting materials on demand through the digital connection" - best described as you are watching an advertisement for Volkswagen which lasts 30 seconds and by clicking on an icon using your remote, you are exposed to several minutes of extended advertising for the Volkswagen product. TVNZ sees this "future-feature" as their sales tool to attract advertising in a steadily diminishing television advertising marketplace; good luck!
- (2) "...over-the-air software upgrades...". What sort of "upgrades"? Built into all modern HDCP/HDMI sets is the capability to restrict what the broadcaster allows to be viewed - and recorded. It is the 'Digital Rights Management' system (page 2, top, here) system at work. TVNZ has urged viewers considering purchase of new widescreen TVs 'not to fear' because they have no plans to implement such things as (a) restrictions for viewing on screens larger than 42", (b) limitations of recording in SD. Alas, these and often software implemented routines are in place - how much do *you* trust TVNZ?

number of actual products following these specifications and applying for the coveted Freeview "certification" would be minimal. Zinwell (model ZMT-620HD) would be the first to qualify; whether any others have, in fact, attracted the coveted "Freeview accreditation" is not verifiable as much of what happens inside of Freeview has become 'off limits'.

Draco (a brand) has appeared on the web offering their version of 'HD DTT'; it appears to have many of the (above stated) Freeview requirements for certification. SatMax-DTT is another (SM801) which claims to "uniquely have two HDMI outputs". Field reports suggest Coship has brought approximately 200 units into NZ but the specifications are unknown. And then there is Peter Escher - the fellow who busted the New Zealand satellite market wide open with non-certified versions of the satellite box. His (available mid-August - slightly too late, perhaps, for the Olympic market bulge) "eXtra-Terrestrial HD" STB is designed through a Chinese source to be dealer-friendly at NZ\$150 or thereabouts in cartons of five at a time. "XT" has the 8 day EPG, the one-time challenging AC3 audio, 1080i and 720p HD (HDMI) output and an accessory HDMI cable. Escher is gambling \$75,000 he can do the same thing to Zinwell's terrestrial version (current version ZMT-620HD) sales dominance as his original Coship satellite version has created with the Zinwell (current version) ZMX-7500 satellite box.

Perhaps the largest challenge for anyone not selling the Zinwell version is the extensive distribution-dealer-installer network created by Freeview for "certified" hardware. Harvey Norman, Noel Leeming, Dick Smith and others where consumers shop all display the Zinwell.

TV shops, lesser well shopped stores offer alternatives. In effect, TVNZ's marketing plan has laid a framework where challenging them ("*Freeview does not manufacture any of the hardware required to receive Freeview services*") has tilted the marketplace away from anyone opposing their certification program. Some are questioning how a SOE (state owned enterprise) can interject their considerable marketing skills and resources towards hand selected suppliers who subscribe to their in-house marketing plan. It is a question without an answer, of course.

#### The unresolved non-responsibles

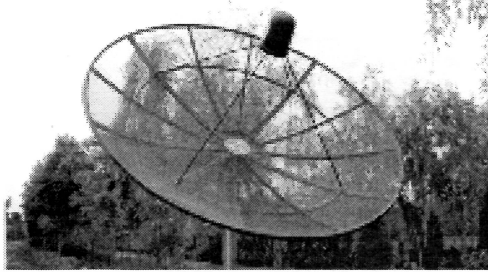
When a TVOne advertisement urges viewers to rush to a store to acquire a STB and a Plasma or LCD widescreen TV "to view the Olympics in high definition" there are no caveats, warnings, or disclaimers. Viewers living where terrestrial HD is not available must work out for themselves that living in Kerikeri makes them disqualified from the glories promised on their analogue screen. Unfortunately, retailers in Kerikeri are supplied the same LCD and Plasma widescreen sets as their same-branded-stores in Auckland or Wellington, Christchurch. So there the receivers are on display, sometimes fed by a Panasonic or Sony Blu-Ray DVD player proudly radiating 720p or 1080i images. No aerial connection, no satellite STB-S will produce the same image but who is to know - the detail is brilliant, the colours more profound.

An honest sales person, should there be such a being, will advise the awe-struck consumer "this quality of image is **ONLY** available if you also purchase a Blu-Ray DVD player **AND** rent or purchase Blu-Ray DVDs." Few, perhaps no, sales person will even know the image

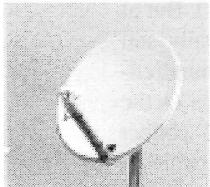


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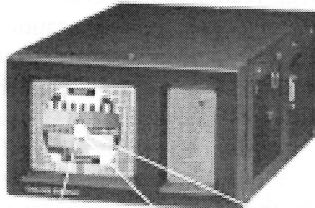
Caravan Digital Ant	\$80	PBT C+Ku band LNB	\$65
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Dual KU Inb holder adjustable	\$20	Zinwell Prime Focus KU Dual Output	\$60
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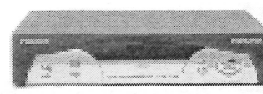
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- Spectrum analyser with expanded base band.
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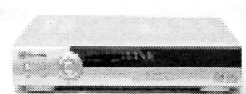
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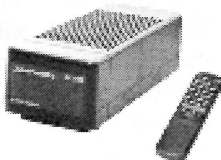
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Irdeto 2 Rec min 5 buy  
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Zinwell 15K  
LNB \$24/each  
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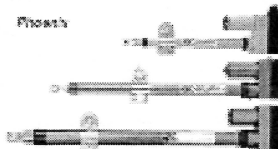
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SuperJack EZ2000  
Positioner \$50/each



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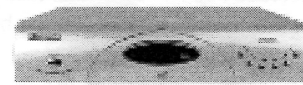
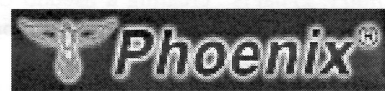


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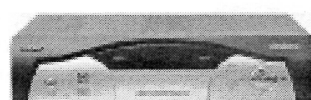


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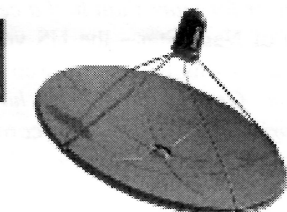


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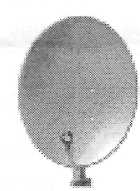
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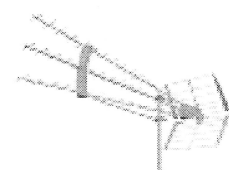


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Peter Escher's XT HD is expected to halve the consumer cost of existing HD terrestrial STB's - but just ahead, widescreen TVs with built-in DVB-T tuners ending the need for STBs.

on display is ONLY available from a pre-recorded DVD and in fact even the latest Panasonic HD recorder (just announced in Australia at A\$1995) will NOT record the images; HDMI cable or not.

If we as industry professionals are overwhelmed by the rapid march of technology (answer in your own way, honestly, standing in front of a mirror), how can even a savvy consumer with access to one of the web's search engines make ANY sense of what is happening? Google "Freeview NZ/Freeview TV/Freeview TV New Zealand" and be amazed there are well over 100 web sites listed. And depending upon your particular bit of timing, www.freeviewnz.tv, the "official" site from TVNZ, may be number one or 33 or 54 to be listed in the web search!

Be further amazed that www.freeviewtv.nz is so poorly created that even as a professional you leave it pondering, 'What in hell did I just learn?' It speaks in a semi-technical jargon and totally misses the key questions:

#1/ What cautions are advised in selecting a TV display system?

#2/ Where I live, in XXXXXXXX, do I really need a HDMI/HDCP qualified receiver?

#3/ When I am selecting a TV display device, what are the criteria which are of concern to me, where I live?

#4/ What is the reason that those people who live beyond range of digital terrestrial must be satisfied with standard definition reception through satellite?

#5/ What about my bedroom/kitchen/extra TV set? Does each require some sort of digital adapting? And, why?

#6/ I have two VCR and one hard drive recording machine. How must they be modified or replaced because of digital?

#7/ How long, how many years and months, do I have before my present analogue TV receivers, VCR, is no longer useful?

#8/ I live where only satellite reception will be available after terrestrial analogue terminates; in the United States and Germany and UK, the government is making available a payment to homeowners that allows us to add a device in front of our present TV receiver or VCR to allow it to function after digital happens. Why not here?

#9/ My present TV, new in 2004, works just fine. What is the reason why it will be inadequate in 2012 or sooner?

#10/ Why do "certified" set top boxes cost more - twice as much - as those the free market is offering which are not "certified"?

#11/ Explain, please, why I may need to spend \$100 plus installation to have a special "digital TV reception antenna" installed for my reception of HD TV?

#12/ And why should I not simply ignore all of this confusion and decide after some years or indecision to simply "order in SKY" which seems to solve all of these problems, in exchange for a monthly payment for far more channels that Freeview currently has on offer?

SKY of course is not sitting on its hands pondering how to respond to the confused-by-bad-planning HD offer now permeating the airwaves on TVOne, TV2 and on occasion TV3 and 4.

Ahead-

All of this is about to change as widescreen TVs with built-in DVB-T tuners appear in quantity; the sun is setting on STBs for any but older analogue sets.

## **Update on Pacific satellite operations**

**Scheduled Launches:** August 8th - Measat 3A to co-locate with 3 at 91.5; 12C + 12 Ku.

**Optus C1/156E:** "Late in June Al Jazeera T2/12.367V (27.800, 3/4; V1121, A1122) went from 4:3 to 14:9 and late in June the data bit telling receivers what screen aspect to use was changed to 16:9 resulting in receivers letter-boxing or cropping the image. On July 1st this was corrected back to 4:3. T6/12.527V, 30.000, 3/4; two changes to radio there. FTA 'Arrow' disappeared (A1062) then replaced by channel label 'IR7' but there is no (FTA) programming present now. The Aboriginal 'Mulba' radio channel (A1064) has a new label; '6WR' and EPG listing of 'Waringarri Media Aboriginal Corp'. It is a test tone only early in July, CA but plays on an Aurora card authorised for Imparja. There remain two FTA audio sources on this transponder: 'ARDS' at A1072 and 'RAI' (also rebroadcast by Satellite Music Australia as 'SMA BUS6 (A336) and 'SMA BUS7' (A342). 'BTV1' has changed PIDs (again); currently V64, A65 from V96/A97. (IF, Qld.)

**Optus D2/152E:** The 3 ABC news feeds (12.536H, 12.554H and 12.545H) all Sr 6.980, 3/4, nominally use PIDS V307, A256 and run normal polarity of video; but, on occasion they change PIDs and invert the video polarity (e.g. July 3 on 12.536H, feed labeled 'ABC 913). 'Deepam (12.733V)', UK based Indian pay-TV service, has reverted to CA after several months of FTA (still goes back to FTA for periods on weekends). Globecast's newest MCPC (12.545V) has added Irdeto 2 to the CA table and requires reloading as NHK has changed PIDs, copies of 3ABN TV and radio have gone, while English language Chinese 'CCTV9' has been added; FTA. This transponder early in July was 3 video service channels: NHK World, CCTV9 and Globecast 'Adhoc'. During June UBI added a pair of Filipino channels, both CA; 12.608H, 'GMAP' V517, A645 and 12.394H 'GMAL' V519, A647. Just prior to 1 July UBI added a seventh transponder (initially 12.720H but later 12.707H), Sr 22.500, 3/4. Initially all were (FTA) colour bars with 'UBI World TV' but subsequently went CA and first channel became 'EUNW' (Euronews with 6 audio PIDs labeled as 1/Spanish, 2/Portuguese, 3/Arabic, 4/German, 5/Italian and 6/Russian). Video data rate suggests this channel was in use (1st week of July) while remaining 12 were apparently static test cards. In mid-June the Optus Aurora 'Tune 152E' channel changed and the test pattern on that channel should NOT be used for set evaluation; it wobbles, badly - perhaps because of a defective SMPS. Changing the PIDs will not fix this one; only Optus can do that. (IF, Qld.) "MKTV is off 12.394H." (Larry)

**Soapbox:** "Network 7's TiVO introduction through Harvey Norman stores (late July) is getting bad reviews and a panning in the press for being 'user restricted

8-year old technology only applicable to terrestrial free-to-air' channels where the primary benefit would appear to be the ability (A\$699) to zap through commercials without watching." (IF, Qld.) "I recently saw a demonstration on the web of three people placing Apple iPhones at 9, 12 and 3 o'clock in a partial circle surrounding perhaps ten pieces of unpopped popcorn. Then the three phones were simultaneously dialed (and rang) and within fifteen seconds all of the popcorn popped - allegedly from energy radiated by the iPhones during the receive-acknowledgement function. The end of report caption said, 'And what do you suppose this is doing to your brain?' Further searching on the web located dozens of scientific (and not so-scientific) studies of the effects of iPhones and cellular mobiles on humans. One study determined of 13,000 children born to woman who used their cell phones 3 or more times daily, 54% of those children developed hyper-activity problems after birth. I know the jury remains out here but surely where there is smoke (or popping popcorn) there must be at least a smouldering fire?" (GM, Sydney) "Freeview claims 123,903 (NZ) STBs have been sold (carefully not breaking down satellite versus terrestrial) as of 30 June. No indication whether that number is (1) number imported, (2) number sold to distributors, (3) number sold to dealers, or as most unlikely - number sold on to consumers. No point in being specific here - it is all about hype anyhow (7.8% of population, Freeview claims, now has access to the service). 'We are all acutely aware that the cost of living has gone up dramatically this year. This makes Freeview's offer of digital quality TV and radio for a one-off cost and no on-going payments very appealing' according to their spokesperson. Sony (to be followed by Panasonic) will shortly be offering receivers with built-in DVB-T tuners (from NZ\$1900 upwards) which will compound the accounting problem - and shorten further the life of the STB world." (Arnold B, Auckland) "Just when you thought it 'safe' to purchase a flat-screen TV. These TVs will use 4,000 tonnes of something called nitrogen trifluoride which ton for ton is 17,000 times more destructive to the atmosphere than carbon-dioxide (CO2). A researcher warns, 'this has a potential greenhouse impact larger than that of the industrialised nation's emissions of PFCs or SF6 or even the world's largest coal-fired plants'. There is no regulatory framework for controlling this product and it has a half-life of 275 years in the atmosphere!" (Irvine) "After beating (or coming to a draw) against Charlie Ergen's DISH/Nagra filed suit, News Corp says it is privatising NDC (the smartcard maker) and bailing out of the firm. The value of the sell-off is placed at US\$2.9 billion." (MR).

**Note:** In August - "Mike's wonderful visit to Arctic Russia" - first hand account of reception from US and Asian satellites north of Arctic Circle.



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